LEDView510 and LEDView530
Operating Instructions

Version 2.20

IMPORTANT NOTICE: When using extreme shrink to drive a single or few LED modules the OSD menu of LEDView may become hardly readable - including the assigned TCP/IP address shown in the System/Network Settings menu. In such case the units need to be controlled by means of the integrated web server. Calibre provides a DiscoveryTool.exe to identify TCP/IP addresses of LEDView units needed for web browser control. The Tool can be found on the CD enclosed or on the Calibre web page www.calibreuk.com.

This manual explains how to operate your LEDView-510 and LEDView-530 image scaler. LEDView-510 and LEDView530 are designed to provide users with a powerful and flexible method of driving large LED or Projection display devices.

If you have any queries relating to this or any other product supplied by Calibre please visit our web site www.calibreuk.com.

For technical support please e-mail techsupport@calibreuk.com or send your queries by fax to (44) 1274 730960, for the attention of our Technical Support Department.

COPYRIGHT

This document and the software described within it are copyrighted with all rights reserved. Under copyright laws, neither the documentation nor the software may be copied, photocopied, reproduced, translated, or reduced to electronic medium or machine readable form, in whole or in part, without prior written consent of Calibre UK Ltd ("Calibre"). Failure to comply with this condition may result in prosecution.
Calibre does not warrant that this product package will function properly in every hardware/software environment.
Although Calibre has tested the hardware, firmware, software and reviewed the documentation, CALIBRE MAKES NO WARRANTY OR REPRESENTATION, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THIS HARDWARE, FIRMWARE, SOFTWARE OR DOCUMENTATION, THEIR QUALITY, PERFORMANCE, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. THIS SOFTWARE AND DOCUMENTATION ARE LICENSED 'AS IS', AND YOU, THE LICENSEE, BY MAKING USE THEREOF, ARE ASSUMING THE ENTIRE RISK AS TO THEIR QUALITY AND PERFORMANCE.
IN NO EVENT WILL CALIBRE BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE SOFTWARE OR DOCUMENTATION, even if advised of the possibility of such damages. In particular, and without prejudice to the generality of the foregoing, Calibre has no liability for any programs or data stored or used with Calibre software, including costs of recovering such programs or data.

Calibre UK Ltd
Cornwall House, Cornwall Terrace
Bradford, West Yorkshire
BD8 7JS, England

Telephone	***+44 (0)1274 394125***
Fax	***+ 44 (0)1274 730960***
Email	***techsupport@calibreuk.com***
Web-site	***www.calibreuk.com***

Copyright (c) 2012 All World-wide Rights Reserved

All trademarks acknowledged

Calibre operates a policy of continued product improvement, therefore specifications are subject to change without notice as products are updated or revised.

E&OE.

CALIBRE
CREATING TECHNOLOGY

Contents

SAFETY WARNING: 1
INTRODUCTION 2
1.1. General Introduction 2
1.2. Packing List 3
LEDVIEW-510 and 530 SYSTEM DESCRIPTION 4
2.1. Product Overview 4
2.2. Product Specification 4
2.2.1. Power Supply Requirement 4
2.2.2. Video Inputs 4
2.2.3. Component Video Inputs 4
2.2.4. 3G-SDI Input 4
2.2.5. Computer (SVGA) Inputs VESA formats 5
2.2.6. HDMI & DVI Inputs 5
2.2.7. Audio Output 5
2.2.8. Display Output 5
LEDVIEW-510/530 CONTROL 6
3.1. Menu Tree 6
3.1.1. OSD 6
3.1.2. Web Browser 13
3.2. Installing the Software 13
3.3. Discovery Tool 13
3.4. Software Operation 14
3.5. Introduction 17
3.6. Main Menu 19
3.7. Input 19
3.8. Output 19
3.8.1. Display Type 20
3.8.2. Output Mode 20
3.8.3. Location 20
3.8.4. Frame Rate 20
3.8.5. I/O Lock 21
3.8.6. Native Color Temp 21
3.8.7. Output Gamma 21
3.8.8. Black Crush 22
3.8.9. Output Config 22
3.8.10. Output Window Size 23
3.9. Colour 23
3.9.1. Black-Level Offset 23
3.9.2. Black-Level 23
3.9.3. Contrast 23
3.9.4. Saturation 23
3.9.5. Hue 23
3.9.6. RGB values 23
3.9.7. Colour Temp 24
3.9.8. Input Gamma 24
3.10. Geometry 25
3.10.1. Horizontal/Vertical Position 25
3.10.2. Edge Control 25
3.10.3. Warp 25
3.10.4. Picture Format 25
3.10.5. Overscan 26
3.10.6. Pan Tilt Zoom 26
3.11. PiP 27
3.11.1. PiP Input 27
3.11.2. PiP Mode 27
3.11.3. PiP Size 27
3.11.4. PiP Position 27
3.12. Multiple Unit 28
3.12.1. Auto Zoom 28

3.12.2. Units Wide/Units High 28
3.12.3. Horizontal Pos/Vertical Pos 29
3.12.4. Blend Width 29
3.12.5. Blend Curve Type 29
3.12.6. Black-Level Uplift 30
3.12.7. Reduce Black-Level Uplift Width 30
3.13. Enhancement 30
3.13.1. Sharpness 30
3.13.2. Detail 30
3.13.3. Video Filters 30
3.13.4. Flicker Filter 31
3.14. System 31
3.14.1. User 31
3.14.2. Names/Profiles 31
3.14.3. Input Config 31
3.14.4. Display Mode 33
3.14.5. Menu Settings 33
3.14.6. Network Settings 33
3.14.7. Factory Defaults 33
3.14.8. Operation Mode 33
REMOTE CONTROL WEB SERVER 34
4.1. Introduction 34
4.2. Installing the Software 34
4.3. Discovery Tool 34
4.4. Software Operation 34
4.4.1. File Upload 35
FIRMWARE UPDATE 37
5.1. Introduction 37
5.2. Updating Firmware 37
ENVIRONMENTAL AND EMC 38
6.1. Recommended Operating Conditions 38
6.2. Storage 38
6.3. CE and FCC Compliance 38
6.4. PAT Testing 38

SAFETY WARNING:

1. THERE ARE NO USER SERVICEABLE PARTS WITHIN THE UNIT. REMOVAL OF THE TOP COVER WILL EXPOSE DANGEROUS VOLTAGES. DO NOT OPERATE THE UNIT WITHOUT THE TOP COVER INSTALLED.

2. ENSURE THAT ALL ELECTRICAL CONNECTIONS (INCLUDING THE MAINS PLUG AND ANY EXTENSION LEADS) ARE PROPERLY MADE AND COMPLY WITH ELECTRICAL SAFETY REGULATIONS.

3. ENSURE THAT THE INTEGRITY OF THE EQUIPMENT ISOLATION BARRIER IS MAINTAINED WHEN CONNECTING TO OTHER EQUIPMENT. THIS MEANS THAT ONLY LOW VOLTAGE ISOLATED CIRCUITS MAY BE CONNECTED TO THE SIGNAL INPUTS AND OUTPUTS. IF ANY DOUBT EXISTS CONSULT QUALIFIED SERVICE PERSONNEL.

4. TO PREVENT SHOCK OR FIRE HAZARD DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE. IF SUCH EXPOSURE OCCURS, REMOVE THE PLUG FROM THE MAINS OUTLET AND HAVE THE EXPOSED UNIT CHECKED BY QUALIFIED SERVICE PERSONNEL.

5. DO NOT CONTINUE TO OPERATE THE EQUIPMENT IF YOU HAVE ANY DOUBT ABOUT IT WORKING NORMALLY, OR IF IT IS DAMAGED IN ANY WAY. WITHDRAW THE MAINS PLUG FROM THE MAINS OUTLET AND CONSULT QUALIFIED SERVICE PERSONNEL.

6. DO NOT REMOVE ANY FIXED COVERS UNLESS YOU ARE QUALIFIED TO DO SO AND EVEN THEN WITHDRAW THE MAINS PLUG FROM THE MAINS OUTLET BEFORE YOU START.

7. THIS EQUIPMENT CONTAINS NO USER SERVICEABLE PARTS. REFER ALL SERVICING AND MAINTENANCE TO QUALIFIED SERVICE PERSONNEL.

8. TO AVOID EXPLOSION, DO NOT OPERATE THIS EQUIPMENT IN AN EXPLOSIVE ATMOSPHERE

INTRODUCTION

1.1. General Introduction

LEDView-510 and 530 is a very flexible image scalers developed specifically for driving large screen displays such as LED walls and Projectors in multiple screen applications from video or graphics sources.

LEDView-510 and 530 feature state of the art digital image processors which provide market leading HD & SD per-pixel multiple low-angle motion-adaptive de-interlacing and automatic film 3:2 and 2:2 pull-down correction, significantly outperforming the capabilities of benchmark competitor products.

LEDView-510 and 530 feature excellent image processing algorithms for the very best scaling, film and video noise reduction and MPEG artefact reduction.

LEDView-510 and 530 use a very flexible high performance video input front end including true component video support in analogue YPbPr and RGBS formats and 3GSDI/HDSDI/SDI digital formats as well as composite (CVBS) and YC/S-Video inputs.

A very high performance video decoder is utilised with 4x oversampling and 3D Y/C separation for outstanding video image clarity.

HDMI and DVI video with HDCP encryption is also supported, as are computer graphics inputs in SVGA analogue and HDMI/DVI digital formats.

The output format can be set to I/O Lock mode where it locks the output frame rate to the input frame rate dynamically without frame rate conversion so as to reduce system latency, or it can be set to a fixed output frame rate for driving basic screens which are not 50Hz-compatible.

A Low latency mode with non-motion adaptive reduced processing is available to further reduce latency.

The output format can also be set to lock to an externally provided synchronization signal.

Outputs are available in VGA analogue and DVI digital formats as well as 3GSDI serial digital formats which are useable simultaneously so that one output can drive the screen while the other runs a local monitor.

Note for the SDI output: not all PC output formats are supported by 3GSDI standards in which case the 3GSDI output is disabled. Also note that if an HDCP encrypted signal is connected to the HDMI or DVI input, the DVI output signal will be similarly HDCP encrypted and the outputs that cannot be encrypted (VGA analogue and the 3GSDI output) will be disabled.

Interlaced outputs are supported, there is a vertical temporal filter facility which greatly reduces interlace flicker.

LEDView-510 and 530 supports Pan, Tilt and Zoom to select a 'region of interest' portion of the input image, fill the screen and pan/tilt within it.

LEDView-510 and 530 by default is designed to drive LED screens and provides output window size control down to minimum pixel count to fit a single LED module at 128x96 pixels. The output window can be positioned anywhere within the chosen output resolution.

LEDView-510 and 530 can also be operated in a mode to drive a projector, in which case warp and soft edge blend features become available allowing to adjust the image to match a rotated, tilted or curved screen.

LEDView-510 and 530 is designed for multi screen or multi projector installations. Auto Zoom and Edge Blend with elaborate Black Level Uplift is provided to stitch multiple projector images together. The same stitching is available to support LED walls which exceed the maximum output resolution of 1920x1200 pixels of a single LEDView-510 and 530.

Edge Blend (for projection applications) allows the brightness level of certain image regions to match the brightness of overlapping areas.

Auto Zoom automatically crops and zooms the input video image to display the section of the total image on the corresponding projector or screen.

System control is via a menu system either on screen controlled by keys on the front panel or through the inbuilt TCP/IP web server (LEDView510) or via a built in LCD panel and jog dial or through the web server (LEDView530).

The OSD is scaled to fit the chosen window.

Note: At extreme shrink it is hardly readable and control from a web browser is recommended. In fact, in most LED screen applications control through a web browser is the primary method of changing the unit set up on the LEDView510.

Additionally a free API manual is published on our website at the link given below to allow the use of the LAN or RS232 remote control ports.

http://www.calibreuk.com/documents/hqview/HQView_LEDView%20API%20Protocol_v2.02%20Generic.pdf

1.2. Packing List

LEDView-510 and 530 is supplied with the following:

1) This manual

2) 3 pin plug IEC mains cable

3) DVI-D output cable

4) CD (w/ documentation and PC tools)

LEDVIEW-510 and 530 SYSTEM DESCRIPTION

2.1. Product Overview

LEDView-510 and 530 is designed to accept the following input signals:

- Composite video via BNC
- Composite video via RCA
- S-Video via 4-way miniDIN
- YPbPr or RGBS SD/ED/HD component video via 3 or 4 BNC connectors
- 3G-SDI/HD-SDI/SDI (Serial Digital Interface) via BNC
- VGA analogue (computer interface) via 15HDD
- DVI (Digital Visual Interface) via DVI-I (supporting a digital and 2nd analogue VGA input)
- HDMI via HDMI connector

2.2. Product Specification

This section provides technical details for all possible inputs.

Please note that not all possible input options are applicable to all output formats.

2.2.1. Power Supply Requirement

100V-264VAC 50/60Hz connected via a standard IEC connector located on the rear panel.

2.2.2. Video Inputs

Composite via BNC and RCA connector, S-Video via 4-way mini DIN socket

Signal formats	Composite (CVBS), S-Video (Y/C)
Standards	NTSC, PAL, SECAM
Composite (CVBS) input level	1V p-p nominal incl. sync
Luminance (Y) input level	1V p-p nominal incl. sync
Chrominance (C) input level	0.6V p-p nominal
Input Impedance (all inputs)	75 Ohms

2.2.3. Component Video Inputs

Via 3 or 4 BNC connectors

YPbPr (YUV), YPbPrS, RGsB and RGBS component video, menu selectable.

Signal formats 484i (480i) and 576i (SD), 480p, 576p (ED), 720p, 1080i at 50, 59.94 and 60Hz and 1080p at 23.98, 24, 25, 29.97 and 30Hz.

Please note this input does not support Computer SVGA signals which should be connected via the Computer SVGA input, The SVGA input supports the separate H & V syncs.

2.2.4. 3G-SDI Input

Format:	SD-SDI, HD-SDI and 3G-SDI YCbCr 4:2:2 serial digital component video
Input impedance:	75 ohms.

SMPTE 292M, SMPTE 259M-C and SMPTE 424M compliant, accepts 484i, 576i, 720, 1080i and 1080p single link formats at 270Mb, 1.485Gb or 2.97Gb rates.

2.2.5. Computer (SVGA) Inputs VESA formats

Signal formats:	DOS, VGA – WUXGA up to 165MHz pixel clock
RGB video level	0.7V - 1.0V
RGB input impedance	75 Ohms
Sync format	Separate H & V sync at TTL/5V levels.

2.2.6. HDMI & DVI Inputs

HDMI 1.3 with or without HDCP, 36-bit video compatible.

DVI-D input with or without HDCP

Signal formats -video

484i and 576i (SD) in double-rate formats (1440 pixels per line), 480p, 576p (ED), 720p, 1080i at 50, 59.94 & 60Hz, 1080p at 24, 25, 30, 50, 59.94 & 60Hz.

Signal formats – computer
DOS, VGA – WUXGA up to 165 MHz pixel clock

2.2.7. Audio Output

LEDView-510 and 530 features an S/PDIF coaxial digital audio outputting HDMI audio.

2.2.8. Display Output

Three output connectors are provided which are useable simultaneously, provided that the input signal is not HDCP encrypted.

When the input signal has HDCP encryption, the DVI-D output connector will carry a similarly HDCP encrypted signal, the VGA and 3G-SDI connectors will be disabled.

When an HDCP encrypted signal is input, but the display device does not support HDCP, the output image will turn black and a message indicating HDCP Signal will come up to indicate this.

There is a DVI-D output and a VGA style output. Both conform to normal VESA standards for connectors and pin outs for these signal types.
The DVI-D connector will support HDMI 1.3 with 36-bit video and HD audio formats when connected to a suitable HDMI 1.3 receiver.

The 3G-SDI BNC output supports the same formats as accepted by the 3G-SDI input (see section 2.4.4.).

Note: The processor's HDCP compliance can be turned off. This is of importance particularly when using a MAC computer as the source. A MAC will encrypt it's output signal if a compliant device is seen attached to it's output. By turning off the HQView processor's compliance the MAC will see a non-compliant device and therefore will not encrypt its output.

LEDVIEW-510/530 CONTROL

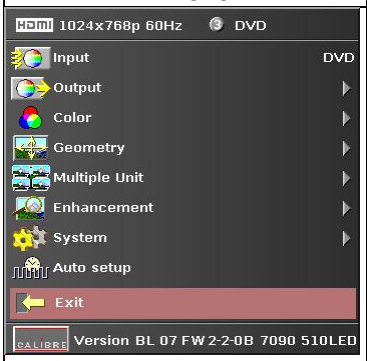
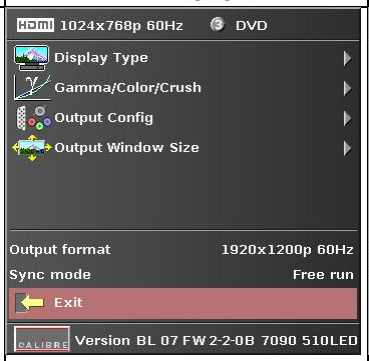
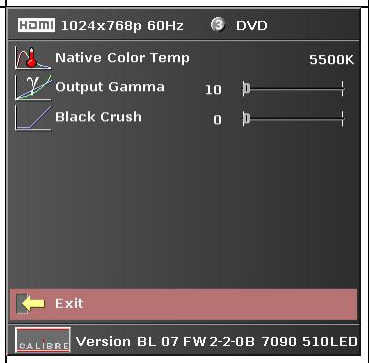
3.1. Menu Tree

LEDView-510 has an On-Screen-Display (OSD) menu to control the unit.

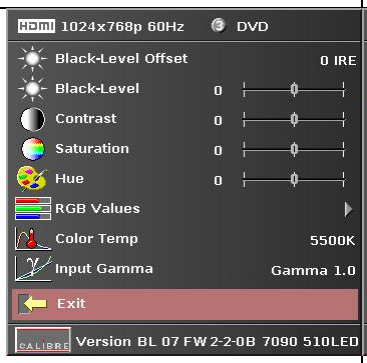
LEDView-530 has a front panel LCD as well. The (OSD) menu can be switched on or off.

The menu structure is also available through a web browser allowing control from a PC.

3.1.1. OSD

1st Level	2nd Level	3rd Level	4th Level
			
			

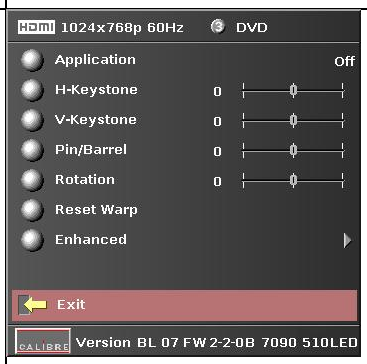
1024x768p 60Hz
DVD
Window Size Enable
Off
Left Edge
0
Right Edge
1920
Top Edge
0
Bottom Edge
1080
Window Size Reset
Exit
Version BL 07 FW 2-2-0B 7090 510LED

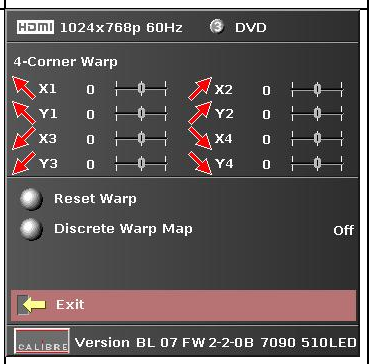

1024x768p 60Hz
DVD
Black-Level Offset
0 IRE
Black-Level
0
Contrast
0
Saturation
0
Hue
0
RGB Values
Color Temp
5500K
Input Gamma
Gamma 1.0
Exit
Version BL 07 FW 2-2-0B 7090 510LED

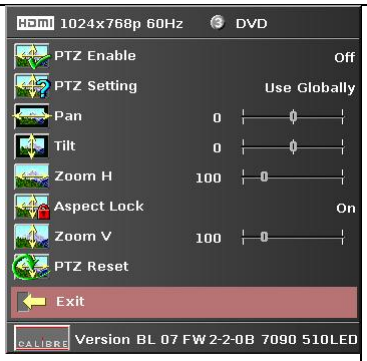
1024x768p 60Hz
DVD
Red Bias
0
Red Gain
0
Green Bias
0
Green Gain
0
Blue Bias
0
Blue Gain
0
Exit
Version BL 07 FW 2-2-0B 7090 510LED

1024x768p 60Hz
DVD
Horizontal Pos
0
Vertical Pos
0
Edge Control
Warp
Picture Format
Standard
Overscan
0
Pan/Tilt/Zoom
Exit
Version BL 07 FW 2-2-0B 7090 510LED

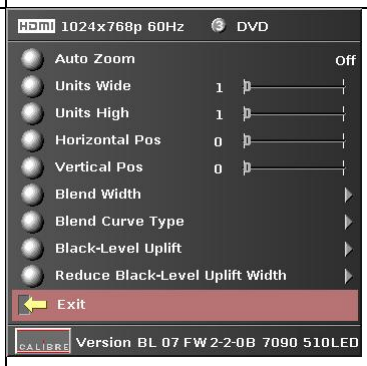
1024x768p 60Hz
DVD
Left Edge
0
Right Edge
0
Top Edge
0
Bottom Edge
0
Exit
Version BL 07 FW 2-2-0B 7090 510LED

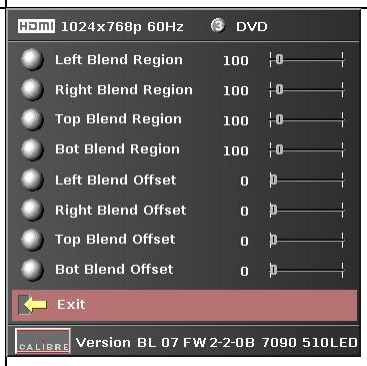

1024x768p 60Hz
DVD
Application
Off
H-Keystone
0
V-Keystone
0
Pin/Barrel
0
Rotation
0
Reset Warp
Enhanced
Exit
Version BL 07 FW 2-2-0B 7090 510LED

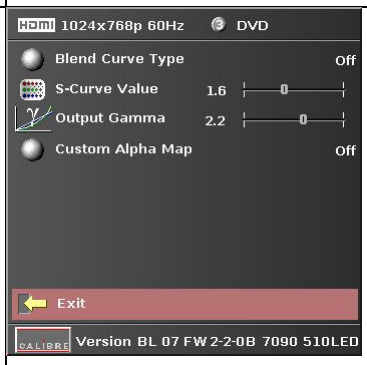

1024x768p 60Hz
DVD
4-Corner Warp
X1
0
X2
0
Y1
0
Y2
0
X3
0
X4
0
Y3
0
Y4
0
Reset Warp
Discrete Warp Map
Off
Exit
Version BL 07 FW 2-2-0B 7090 510LED


1024x768p 60Hz
DVD
PTZ Enable
Off
PTZ Setting
Use Globally
Pan
0
Tilt
0
Zoom H
100
Aspect Lock
On
Zoom V
100
PTZ Reset
Exit
Version BL 07 FW 2-2-0B 7090 510LED

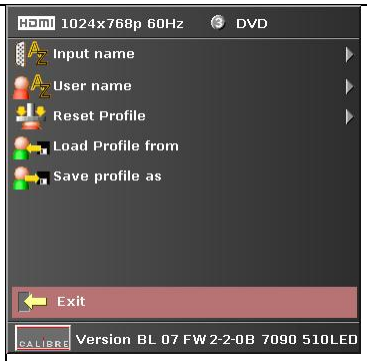
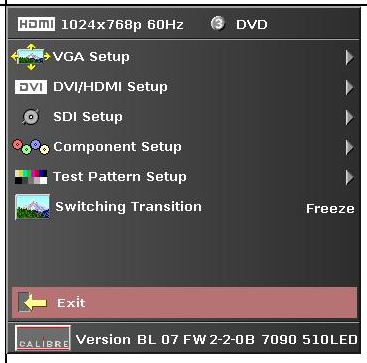
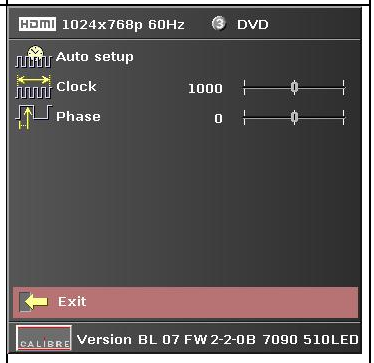
1024x768p 60Hz
DVD
PIP Input
CVBS 1
PIP Mode
Off
PIP Size
Small
PIP Position
Top Left
PIP H-Pos
5
PIP V-Pos
5
Exit
Version BL 07 FW 2-2-0B 7090 510LED


1024x768p 60Hz
DVD
Auto Zoom
Off
Units Wide
1
Units High
1
Horizontal Pos
0
Vertical Pos
0
Blend Width
Blend Curve Type
Black-Level Uplift
Reduce Black-Level Uplift Width
Exit
Version BL 07 FW 2-2-0B 7090 510LED

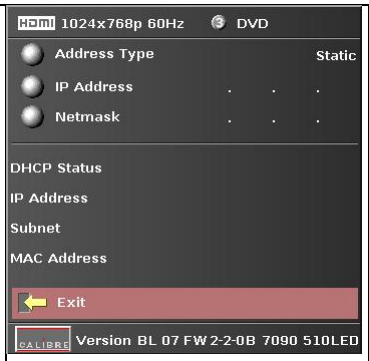
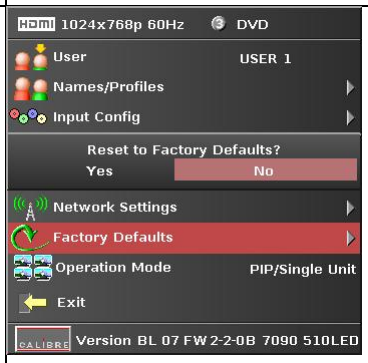

1024x768p 60Hz
DVD
Left Blend Region
100
Right Blend Region
100
Top Blend Region
100
Bot Blend Region
100
Left Blend Offset
0
Right Blend Offset
0
Top Blend Offset
0
Bot Blend Offset
0
Exit
Version BL 07 FW 2-2-0B 7090 510LED


1024x768p 60Hz
DVD
Blend Curve Type
Off
S-Curve Value
1.6
Output Gamma
2.2
Custom Alpha Map
Off
Exit
Version BL 07 FW 2-2-0B 7090 510LED

		1024x768p 60Hz DVD Non Blend Region 0 Top Left 0 Top Middle 0 Top Right 0 Middle Left 0 Middle Right 0 Bottom Left 0 Bottom Middle 0 Bottom Right 0 Exit Version BL 07 FW 2-2-0B 7090 510LED	
		1024x768p 60Hz DVD Reduce X1 0 Reduce Y1 0 Reduce X2 0 Reduce Y2 0 Reduce X3 0 Reduce Y3 0 Reduce X4 0 Reduce Y4 0 Exit Version BL 07 FW 2-2-0B 7090 510LED	
	1024x768p 60Hz DVD Sharpness 0 Detail 0 Video Filters Flicker Filter Exit Version BL 07 FW 2-2-0B 7090 510LED	1024x768p 60Hz DVD LTI Level 0 CTI Level 0 TRNR 0 MNR 0 CCS Off Exit Version BL 07 FW 2-2-0B 7090 510LED	
		1024x768p 60Hz DVD Filter Strength 2 Filter Recursion Off Exit Version BL 07 FW 2-2-0B 7090 510LED	

<table>
<tr>
<td></td>
<td>
</td>
<td> 
</td>
<td>
</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>
</td>
</tr>
<tr>
<td></td>
<td></td>
<td> 
</td>
<td> 
</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>
</td>
</tr>
</table>

			1024x768p 60Hz DVD 3G Level B Stream Stream 1 SDI Audio Group Channels 0,1 SDI Audio Routing HDMI & SDI Exit Version BL 07 FW 2-2-0B 7090 510LED
			1024x768p 60Hz DVD Component Color Space RGB Component Sync 3 Wire Exit Version BL 07 FW 2-2-0B 7090 510LED
			1024x768p 60Hz DVD Test Pattern Red Curtain Foreground Color Black Background Color Black Test Pattern Speed 1 Line Width 40 Screengrab Exit Version BL 07 FW 2-2-0B 7090 510LED
		1024x768p 60Hz DVD Language English (AE) Keypad Lock Off Menu Display Time 5 sec OSD Messaging On Menu Position Center Exit Version BL 07 FW 2-2-0B 7090 510LED	

		 HDMI 1024x768p 60Hz DVD Address Type Static IP Address Netmask DHCP Status IP Address Subnet MAC Address Exit CALIBRE Version BL 07 FW 2-2-0B 7090 510LED	
	 HDMI 1024x768p 60Hz DVD User USER 1 Names/Profiles Input Config Reset to Factory Defaults? Yes No Network Settings Factory Defaults Operation Mode PIP/Single Unit Exit CALIBRE Version BL 07 FW 2-2-0B 7090 510LED		

3.1.2. Web Browser

The factory default is DHCP.

The Network Settings menu allows to configure the LEDView-5xx TCP/IP address. Under Address Type a static or DHCP leased address can be chosen. The static address and Netmask needs to be entered manually.

The Network Settings menu has a section with information on the DHCP Status and IP address assigned to the board, as well as the fixed MAC Address programmed into the LEDView-5xx. The DHCP status is Off when static assignment is used or it displays an address when DHCP has leased an address accordingly or it is None assigned if the lease was not successful.

Note: When changing from DHCP to Static mode or vice versa it is strongly recommended that LEDView-5xx is powered down after such a change, then powered back up, so that it is properly recognised by other devices on the network.

3.2. Installing the Software

No extra software needs to be installed on a PC. The PC web browser is used as the graphical user interface for all control items. To connect to the LEDView-5xx the TCP/IP address of the unit has to be entered into the address list box of the web browser in the following format http://xxx.xxx.xxx.xxx. The TCP/IP address assigned to LEDView-5xx can be found in the System/Network Settings menu.

3.3. Discovery Tool

Calibre provides a DiscoveryTool.exe Windows application to identify Calibre boxes in the network.

http://www.calibreuk.com/downloads/LEDView/DiscoveryTool_V1.0.exe

Clicking on the link of the recognized box will open a browser and make a connection to the corresponding box. The box identifier is made up of “PV6S” in the case of LEDView-5xx followed by the 6 least significant digits of the MAC address. The MAC address of the box can be found in the System/Network Settings menu.

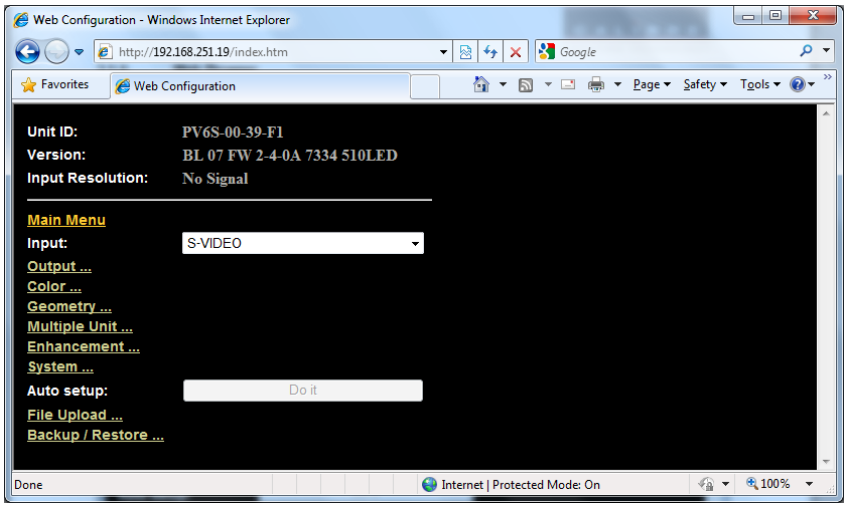
Note: This is for use on a network not on a single wire connection.

3.4. Software Operation

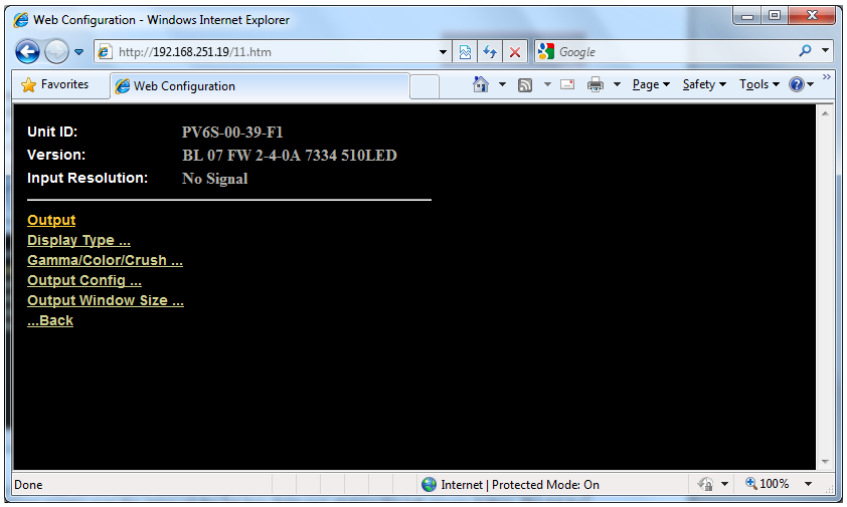
Once the address has been entered into the web browser starts to load pages from the LEDView-5xx mirroring the menu system of the unit. All menu items are shown as their respective buttons, sliders and list boxes and can be accessed and altered with the PC mouse or corresponding navigational key presses.

To control LEDView through a network start a Web Browser and enter the TCP/IP address of the unit in the address field of the browser. A “Loading Please Wait” message will appear in the browser window and the web server of LEDView will mirror the menu into the browser.

The main menu will be displayed. The Unit ID above the menu is composed of the board identifier PV6S followed by the 6 least significant digits of the MAC address.



The menu system can be navigated with the PC mouse. Move the mouse pointer over the menu item and click the left mouse button to open a submenu. Submenus have three dots following the menu name. Below the Unit ID you find the name of the current active submenu. Move the mouse pointer over the Back item and click the left mouse button to go back to the prior menu.

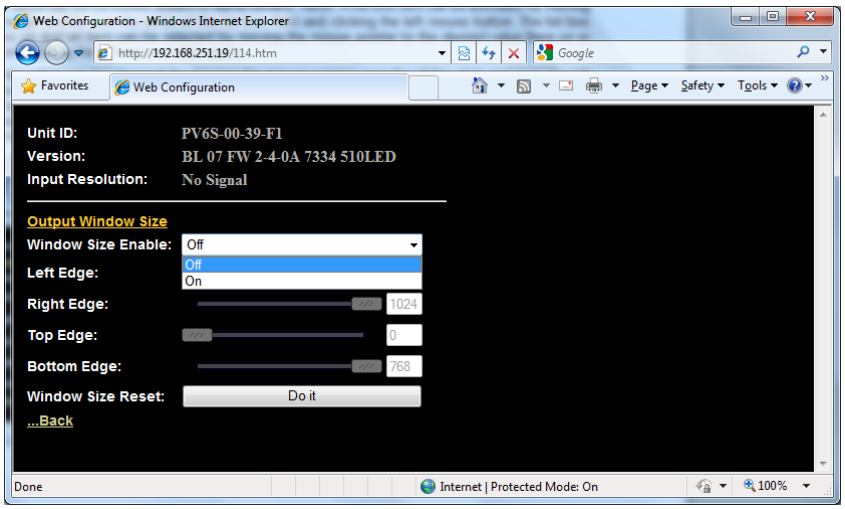


Menu items can be lists, sliders or alpha numeric fields.

A list item can be activated by moving the mouse pointer over the list item and clicking the left mouse button. The list comes up and an item can be selected by moving the mouse pointer to the desired value (here on or off) and clicking the left mouse button again.

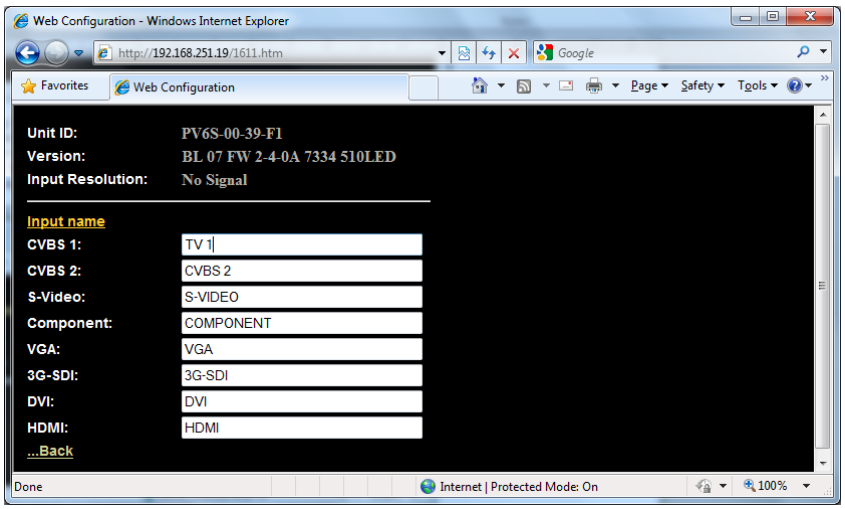
A slider value can be changed by moving the mouse pointer over the slider, click and hold the left mouse button and move the mouse to the right or left to decrease or increase the value. Also, the slider can be controlled in single steps with the mouse wheel.

Values can be entered directly in the field beneath the slider. Click into the field, enter the new value through the PC keyboard and click with the left mouse button to any location outside the field to update to the new value.



Renaming the input channel is used as an example to explain the alpha numeric field changes. Move the mouse pointer into the alpha numeric field and click on the left mouse button. The cursor can be controlled with the right/left and back space keys of the PC keyboard. The new name for the input channel (here a change was made from the default name CVBS 1 to TV 1) can be entered.

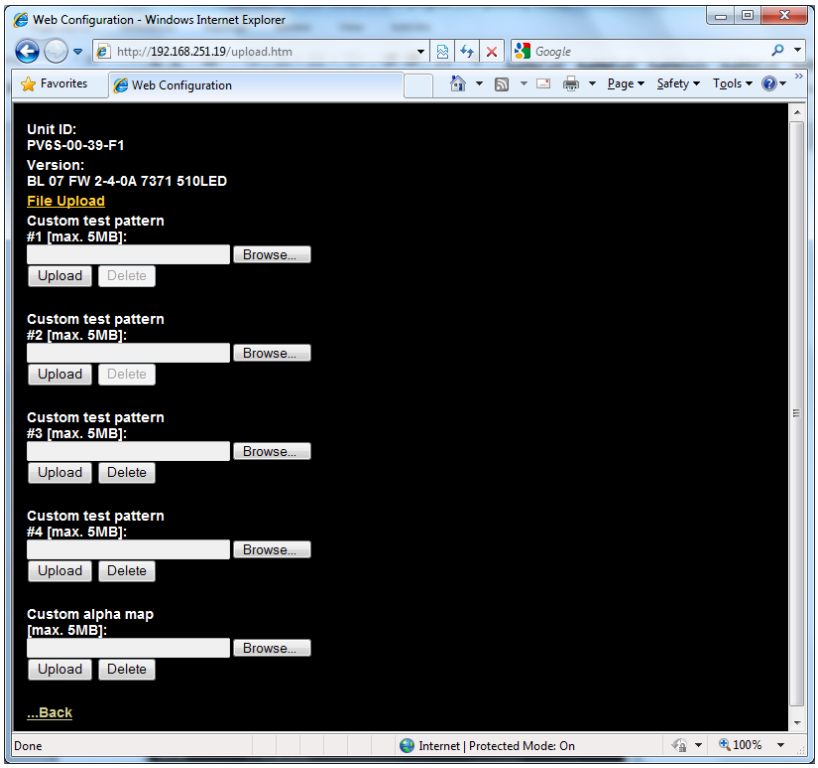
The new name is stored when clicking with the left mouse button to any location outside the field.



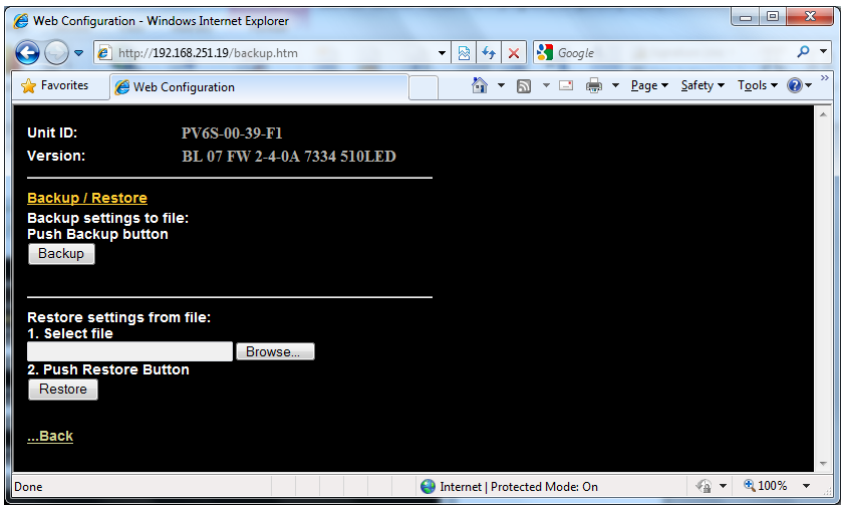
A page for file uploads is provided.

Test patterns can be created on a PC and uploaded to the LEDView unit.

Also, an alpha map can be loaded to LEDView. Details are outlined in paragraph 4.



LEDView set-ups can be backed up to a PC and restored later through web browser uploads.



3.5. Introduction

The front panel has keys for OSD menu navigation, input channel selection and often used functions. OSD navigation is through two direction keys and a Menu/Enter key.

LEDView-510

1 2 3 4 5a

The LEDView530 has a different front panel, the three buttons at position 4 above are replaced with Menu/Enter and Back buttons (4), a local LCD menu display (5) and a rotary item choice jog dial/push to enter control (6).

LEDView-530

1 2 3 4 5b 6

When applying power to the unit it starts up. This is indicated by the green On LED flashing. Once the unit is operational, the On LED is permanently on.

1 – Standby key: By pressing the Standby Key, the unit is put into standby mode. This is indicated by the red Standby LED being permanently on. The red Keylocked LED indicates a keypad locking condition issued through the menu. If a key on the front panel is now pressed a menu message is displayed and displays the multiple key press to be applied to unlock the front panel keys.

2 – Input channel selection keys: All input channels can be directly selected. The active channel is indicated by the red LED above the corresponding channel key being on.

3 – Test Pattern key: Directly activates a Test Pattern. Use the up/down keys to toggle trough the available test patterns. The LED above the switch is switched on when in Test Pattern mode.

4 – Menu navigational keys: With the Menu/Enter key the Menu menu is activated, this key also acts as an Enter key for menu changes.

LEDView-510: The up/down keys are used for OSD menu navigation. To exit the OSD menu or any submenu press the up and down key simultaneously or navigate to the Exit item and press the menu key. To access a submenu navigate to it and press the menu/enter key. To apply a change go to the menu item, press the menu/enter key and make a parameter change with the up/down key. Confirm the change by pressing the menu/enter key. This will also bring you back to the submenu.

LEDView-530: A jog wheel is used for menu navigation and changing values instead of the up/down keys. To exit the menu or any submenu press the Back key or navigate to the Exit item and press the menu/enter key or press the jog wheel.

5a – Direct function keys (LEDView-510): Contrast (gain), Black (offset/brightness), Colour (saturation) and Hue can be altered directly from the front panel.

5b – Front Panel LCD (LEDView-530 only): The Menu is also shown on the LCD front panel.

6 – Jog wheel (LEDView-530 only): The wheel is used for navigating through the menu system and making value changes. The jog wheel has a push function. Pushing the knob has the same effect as pushing the menu/enter key.

With the following multiple key presses further functions can be applied:

	LEDView-510	LEDView-530
Keypad unlock:	Menu/Up/Down	Back/Menu
Mode reset:	Menu/Black up/Black down	Back/S-Video
Factory reset:	Colour up/Colour down/Hue up/Hue down (in live operation or at power up)	Back/YPbPro (in live operation or at power up)
Set output mode to 720p:	Menu/Contrast up/Contrast down	Back/VGA

The back panel features all input and output connectors, communication ports and the power supply connector.

1 – SD/HD-SDI/3G-SDI input

2 – Composite Video 1 (RCA) and S-Video input

3 – Composite Video 2 (BNC) and Genlock input (BNC)

4 – Digital audio output

5 – HDMI input

6 – DVI-D and VGA input

7 – YPbPr / RGB(S) video input

8 – DVI-D and VGA output

9 – 3G-SDI output

10 – USB port

11 – TCP/IP port

12 – RS232 port

13 – Power supply connector

3.6. Main Menu

The main menu lists the input channel select item, 6 sub menus, and a menu item for automatic setup of VGA modes. The 6 sub menus are Output, Colour, Geometry, Multiple Unit, Enhancement and System.

On each menu page an Exit menu item is available to leave the menu or submenu. LEDView-510 also exits a menu or submenu by pressing the up/down key simultaneously. LEDView-530 has a separate back key for this purpose.

Some adjustments are not applicable to all signal types or operating modes, in which case those non-applicable functions will be greyed out and are not accessible.

All menus have a top status line and a bottom line indicating the firmware revision number.

In the status line the currently selected input channel is indicated and the detected mode is identified. The bottom line shows the firmware revision number of the boot-loader behind BL and the revision number of the firmware behind FW.

Navigating the menu system or changing values is done with the up and down keys in the case of LEDView-510 or a jog wheel in the case of LEDView-530.

In the following sections the set-up method using the up and down keys is described.

To set up your LEDView-510 or 530 it is recommended that you follow this procedure:

Choose the correct output mode and parameters to suit your screen or projector.

For a LED screen set each LEDView-510 or 530 window size and position to match the LED module to be driven.

Select the correct input signal.

Set the input levels and features appropriately to optimize the appearance of your image.

Set any other parameters to suit your application.

Note: The processor is designed to have separate memories for all the settings in each section. All Input parameters are specific to your chosen input channel and input signal type, they are not global to the unit. If you change the settings in for example the composite video channel you will not affect the settings you may have made in for example the DVI channel.

All Output parameters only affect the output, they do not affect any of the inputs but please note that the appearance on the screen because it is the output these adjustments will appear to be global.

3.7. Input

The list of available inputs can be scrolled through using the Up and Down keys. The new input is not selected until the Menu key is pressed. The list of inputs are: CVBS 1, CVBS 2, S-Video, Component, VGA, 3G-SDI, DVI, HDMI and Test Pattern.

Test patterns can be generated by LEDView-510/530 without needing an input connected.

When Test Pattern is selected as the input, the required test pattern can be chosen with the menu navigation up/down keys when the OSD menu is off or by the jog wheel on the 530

3.8. Output

This menu contains adjustments associated with setting up outputs from the unit. The items are organized in four sub menus, Display Type, Gamma/Color/Crush, Output Config and Output Window Size. Use the up and down keys to scroll to the required item and press the Menu key.

3.8.1. Display Type

Settings: LCD/Plasma, Projector & LED

The Display Type setting defaults to LED. In LED mode the Windows Size menu is available which allows easy to use adjustment to fit in a given LED module.

Select Projector if you drive a projector and need the warp function.

Set to LCD/Plasma if you do not need the warp functions to be shown in the menu system. In this mode also the Flicker Filter becomes available.

3.8.2. Output Mode

Settings: 640x480, 800x600, 1024x768, 1280x768, 1280x800, 1280x1024, 1400x1050, 1600x1200, 1920x1200, 480i, 576i, 480p, 576p, 1080i, 720p, 1080p

Set up the desired output resolution with output mode. The output mode setting should match the native resolution of the imaging device to avoid double scaling.

Note:- If selecting for an LED display choose a setting that is equal or greater than the display and then use the window size adjustment to accurately scale to the LED wall.

Note:- Some low cost LED walls display artefacts when using lower resolution settings. To deal with these artefacts it is sometimes necessary to choose a much higher resolution than expected and then use the window size adjustment as above.

Note:- The 3GSDI output does not feature the PC mode resolutions, only 480i/p, 576i/p, 720p and 1080i/p output modes are supported. Available SDI output modes are indicated by an SDI connector symbol in the output mode selection list box of the OSD. SDI output modes not supported are indicated with this symbol crossed out red.

The default output resolution as set by the factory or after a user issued factory reset is 640x480. If only a SDI capable monitor is connected no image is displayed and consequently the output resolution cannot by changes through the OSD. Pressing the Menu/Contrast up/Contrast down key combination will switch the output resolution from 640x480 to 480i which SDI monitors should be capable to display. If a DVI or VGA monitor has issues to display this 480i mode, by pressing the key combination again the 640x480 output mode is set-up which all DVI and VGA monitors should be capable to display.

3.8.3. Location

Settings: Front Tabletop, Front Ceiling, Rear Tabletop, Rear Ceiling

The image can be flipped to accommodate different projection scenarios as well as screens mounted upside down.

3.8.4. Frame Rate

Available settings: 60 Hz, 50 Hz, 48 Hz, 24 Hz, Auto

In auto mode the output frame rate follows the input frame rate as configured in the Output Config menu.

Signals with 24Hz, 25Hz, 48Hz, 50Hz input modes get special treatment,

Modes with other refresh rates are displayed at 60Hz.

24Hz input modes will be output at 24Hz if the output resolution is set to either 720p or 1080p and the Frame Rate setting in the Output Config menu includes 24Hz, otherwise it is displayed at twice the rate if the Frame Rate setting in the Output Config menu includes 48Hz. Otherwise a 24Hz input mode is displayed at 60Hz.

48Hz input modes will be output at 48Hz if the Frame Rate setting in the Output Config menu includes 48Hz. Otherwise it is displayed at 50Hz.

A 25Hz input mode is output at twice the frame rate 50Hz. An exception to the 24/25Hz input mode treatment is if the output resolution is set to 480i or 480p. 480i and 480p are always run at 60Hz output rate.

50Hz input modes are displayed at 50Hz output rate.

The output frame rate can also manually set to 24Hz, 48Hz, 50Hz or 60Hz if possible, i.e. such output modes are available.

Only 720p and 1080p output modes are available with 24Hz refresh rate.

480i and 480p output modes are only available at 60Hz refresh rate.

For all other modes 48Hz, 50Hz and 60Hz refresh rate is available.

3.8.5. I/O Lock

Available settings: Off, Source, Genlock, Auto

If I/O Lock is switched off the output is run with a fixed refresh rate determined by the frame rate setting. This setting will result in the output vertical refresh rate deviating from the input refresh rate, even if both are nominally at the same rate. This causes occasional frame dropping or repeat.

If I/O Lock is set to Source the output refresh rate is following the input video refresh rate if possible.

If I/O Lock is set to Genlock the output refresh rate is following the vertical sync of an externally provided signal (GENLOCK BNC) if locking is possible.

Locking is achieved by modulating the output clock and works if input and output refresh rate are nominally at the same rate, e.g. when frame rate is set to 60Hz and the video input is also 60Hz. If e.g. the video input rate is 50 Hz and the Frame rate is set to 60Hz, the output will enter free run mode.

Note:- When Frame Rate is set to Auto the matching frame rate is chosen.

When I/O lock is set to Auto and a Genlock source is present to the GENLOCK BNC. The processor will lock with the external genlock signal if possible. If genlocking is not achievable, locking to the video source frame rate is tried. If that is not possible the output is running in free-run mode.

The status line of the OSD window under Sync Mode indicates if the output signal is locked to the input signal (I/O Locked or Genlocked) or in free run mode (Free Run).

3.8.6. Native Color Temp

Settings: 5500, 6500, 7500, 9300, 10000

Native Colour Temp allows the user to select from pre-configured colour temperatures to match the display. If both Native Colour Temp set here in the Output menu and Colour Temp set in the Colour menu are set to the same value, no conversion is performed.

3.8.7. Output Gamma

Settings: 1.0 to 3.0 in steps of 0.1

Output gamma allows to re-gamma video signals with pre-configured gamma values to match the display. Input gamma and output gamma both default to 2.2. If they are both set to the same value, there is no effect on the image.

Note: If e.g. an adjustment to reduce the level of red in the image is required, select a higher number for the (input) Colour Temp in the Colour menu, or a lower number for the Native Colour Temp in the Output menu.

3.8.8. Black Crush

Please note:- The input black level should be optimized prior to using Black Crush and the TNR (and where applicable MPEG) noise reduction filter settings should also be optimized first. Black Crush is not a replacement for correct input settings but is available to clean up any remaining black level noise on the signal which may become apparent on very bright LED screens

Settings: 0 to 255 in steps 1

Black Crush provides a coring function on the output stage of the LEDView-510 or 530. This allows low-level noise in dark areas to be clamped to black which can be useful on LED screens on which black level noise can be particularly noticeable as 'sparkles'. It modifies the black response of the gamma & colour curves so as to hide any black-level noise which may be apparent on the LED screen when high LED brightness is used, but does this without reducing peak white brightness,

Note this is not the same as adjusting the black level.

It is recommended to use a setting between 0 and 16 and not more than 20. For most LED screens the optimum setting for Black Crush is between 8 and 20. For particularly noisy subject material 24 can be used but detail loss may occur in dark areas. If too high a setting is chosen, image solarization may be observed where dark image areas turn completely black or even change colour.

3.8.9. Output Config

This Menu provides items to configure the output port.

Sync Mode

The VGA output port can be operated with separate syncs, composite syncs and Sync-On-Green.

Internally, the display interface processes data at a full ten bits per colour.

Optimize for Display

Settings: DVI forced, Optimized, DVI/HDMI

Internally, the display interface processes data at a full ten bits per colour. A resolution of ten bits per colour is provided for the VGA output. The colour depth on the DVI-D output is determined by the supported standard of the attached monitor or device when set to DVI/HDMI.

For DVI 1.0 and HDMI 1.1/1.2 devices it is 24 bit, for HDMI 1.3 compliant devices it is up to 36 bit.

DVI forced will output with 24 bit colour depth irrespective of the supported standard of the attached monitor.

When the Optimized setting is enabled the output resolution is automatically set to the native screen resolution of the attached display. The colour depth is determined in the same way as when set to DVI/HDMI.

DVI Colour Space and DVI Range

The colour space of the DVI output port can be set to RGB or YPbPr, the range can be set to Expand, Normal, Compress and Auto.

A limited video range is only using the following greyscale for video information - 8 Bit System: 0x01 .. 0xFE, 10 Bit System: 0x004 .. 0x03FB.

Auto makes the best choice for the range for the DVI and 3G-SDI output. If the HDMI/DVI output does not behave as expected, e.g. because the HDMI display is not evaluating AVInfoFrames properly, the range can be changed manually.

Frame Rates

Settings: 60/50 Hz, 60/50/24 Hz, 60/50/48, 60/50/24/48

Limits the possible output frame rates that can be selected. It is primarily to be able to limit the choices available for the Auto refresh rate configuration discussed in paragraph 3.5.3.

3G-SDI Data Map

720p and 1080i HD-SDI data can be output in YCbCr 4:2:2, YCbCr 4:4:4 or RGB 4:4:4 mode.

3GSDI data can be output as Level A or B data.

3.8.10. Output Window Size

In this submenu the size of the output window can be scaled to fit exactly the size of your LED wall, i.e. the image size is reduced and positioned according to the right, left, top and bottom edge slider setting. The image can be reduced to as few as 128x96 pixels.

A reset function is provided for convenience to set all sliders back to full output resolution.

Note: When the Windows Size function is enabled the latency of the system increases by 1 frame.

3.9. Colour

This is an INPUT channel menu containing adjustments associated with setting up **inputs** to the unit.

3.9.1. Black-Level Offset

Settings: 0 IRE, 7.5 IRE

Used to select 7.5 IRE black level set-up adjustment. Should always be set to 7.5 IRE for HDMI video and NTSC video inputs and should usually be off for PAL analog video inputs.

3.9.2. Black-Level

Settings: -50 to 50 in steps of 1

Black level controls the offset applied to the video signal. (same as the brightness control on a TV)

3.9.3. Contrast

Settings: -50 to 50 in steps of 1

Contrast controls the gain applied to the video signal.

3.9.4. Saturation

Settings: -50 to 50 in steps of 1

Control of video colour saturation, (applies individually to all video inputs but not computer input signals or formats).

3.9.5. Hue

Settings: -50 to 50 in steps of 1

Control of the hue of the colour of a video signal, Normally only needed when playing NTSC signals or video transferred poorly from an NTSC origination. (applies to all video inputs but not computer input signals or formats).

3.9.6. RGB values

This is a user-defined colour temperature setting whereby individual R,G,B gain (white balance) and offset/bias (black balance) can be set so as to accurately calibrate a particular **input** to the display device.

3.9.7. Colour Temp

Settings: 5500, 6500, 7500, 9300

A preset range of Colour Temperature which allows the user to select from pre-configured colour temperatures to match the colour temperature of the incoming signal. If both Colour Temp set here in the Colour menu and Native Colour Temp set in the Output menu are set to the same value, no conversion is performed.

3.9.8. Input Gamma

Available settings: Gamma 1.0, Gamma 1.5, Gamma 2.2, Gamma 2.8

Set this value to match the native gamma of the input signal.

Input gamma and output gamma both default to 2.2. If they are both set to the same value, there is no effect on the image.

3.10. Geometry

This menu contains adjustments associated with setting up position, aspect ratio and scale of the input signal..

3.10.1. Horizontal/Vertical Position

Settings: in steps of 1 pixel/line

Change the positional values to match the display boarders.

3.10.2. Edge Control

Submenu for changing the position of the image edges, effectively scaling the image in horizontal and vertical direction.

3.10.3. Warp

Note:- This menu is only available when Display Type is chosen as **Projector**.

The warp applications are Keystone, 4-Corner, Rotation, Protrait 90°, Portrait 270° and PC.

The projection condition can be Front Table-top, Front Ceiling, Rear Table-top or Rear Ceiling. The corresponding image flip is applied in addition to the following warp applications.

The warp applications are **Keystone, 4-Corner, Rotation, Portrait and PC**.

In the **Keystone** application the image can be adjusted to match a horizontally and vertically tilted screen. Also, Pin/Barrel distortion of the lens or screen can be adjusted simultaneously.

Under the **4-Corner** application all corners can be moved and the image linearity is calculated to fit into the given trapezoid. Please note that this function is designed to be used on Flat rectangular screens only. For more complex shapes please use the PC mode.

The **Rotation** application rotates the image from -180 to 180 degree (one full circle) one degree at a time.. At the same time Pin/Barrel distortion of the lens or screen can be adjusted again.

Special **Portrai**t warp applications for clockwise (90°) and counter-clockwise (270°) rotation with scaling are provided. These functions cut out the centre of a normal landscape video signal, rotate it by 90 degrees and then scales that centre portion of the signal to fit a portrait mounted screen. Predefined warp maps for portrait mode act on a 16:9 input image. The area is rotated and scaled such that is fills a 9:16 screen.

With **PC** application activated the HQView-520 and 530 communicate with the PC tool Warp Generator.

http://www.calibreuk.com/downloads/pvphd/CUK%20Warp%20Generator%20Installer%20V2-50-8337.msi

Warp Generator allows you to define an arbitrary screen in live operation by projecting a grid on the surface and move the grid points to get a rectangular output. This grid information can then be downloaded in one of eight slots used for real-time processing of image data which make the image appear rectangular on a curved screen.

For convenience all settings can be reset with one button provided in the submenus.

3.10.4. Picture Format

Settings: **Standard, Full Screen, Crop, Anamorphic**

Picture Format allows a user to select the displayed aspect ratio where the signal input is different to the display panel's natural aspect ratio.

Note that some aspect ratios may not be applicable to all signal types, in which case selecting a non-applicable aspect ratio conversion will have no effect on the displayed image. E.g. when a 16:9 image is displayed on a 16:9 panel all settings give an identical full screen image.

Standard preserves the aspect ratio of the incoming image and scales the image to fit into the size of the panel. Dependant on the aspect ratio of the panel the image is either bordered by the right/left side or bottom/top of the panel. Non-used areas of the panel are displayed black (letterboxed).

Full Screen scales the image to the size of the panel without preservation of the aspect ratio.

Crop preserves the aspect ratio and scales the image to fit the screen. Dependant on the aspect ratio of the panel either the top/bottom or right/left areas of the image are cropped.

Anamorphic scales the input image such that it is displayed with a 16:9 aspect ratio when displayed on the screen. The image is further scaled to fit into the size of the panel. Dependant on the aspect ratio of the panel the image is then either bordered by the right/left side or bottom/top of the panel. Non-used areas of the panel are displayed black (letterboxed).

3.10.5. Overscan

Settings: 0 to 10 in steps of 1

Overscan is used to slightly zoom into the image. Thus, the border area of an image is no longer displayed on the screen. This cuts off unwanted features at the top or bottom from e.g. head switching in legacy video images.

3.10.6. Pan Tilt Zoom

This menu provided settings to zoom and shrink the image, as well as panning within the image.

Pan Tilt Zoom (PTZ) can be switched on or off.

When switched on the latency of the system is increased by one frame. Thus, there is a difference of a PTZ setting off or on with no zoom.

PTZ settings can be saved per mode or globally, i.e. if applied globally the same PTZ settings are applied when switching input channels or changing the input mode.

The Zoom slider allows to zoom into the image or shrink it.

When Aspect Lock is set to On the separate slider for zooming vertically is greyed out and the horizontal zoom or shrink factor is used as vertical factor as well. The aspect ratio is preserved.

When Aspect Lock is Off horizontal and vertical scaling factors can be chosen separately.

With the Pan and Tilt sliders panning within the image in horizontal and vertical direction is possible. Off raster panning is allowed, i,e, the image can be shifted outside the active area of the display.

For convenience the PTZ settings can be reset with one button.

3.11. PiP

LEDView-510/530 can be rebooted in a single unit configuration. Then the multiple unit menu is replaced by a PiP menu. It contains adjustments associated with setting up source, position and size of a picture in picture video image.

3.11.1. PiP Input

Selects the video source for the PiP window.

The available PiP video sources depend on the currently displayed (main) video source.

If the main video source is HDMI, DVI, DVI-A, VGA or COMPONENT the available PiP sources are CVBS1, CVBS2, S-VIDEO and HD-SDI.

If the main video source is CVBS1, CVBS2, S-VIDEO or HD-SDI the available PiP sources are HDMI, DVI, DVI-A, VGA and COMPONENT.

3.11.2. PiP Mode

Settings: Off, PIP, PAP, POP

Three picture in picture modes can be invoked.

PIP displays a second channel within the main image.

PAP displays both pictures side by side scaled to the vertical size of the panel.

POP displays both images side by side preserving the aspect ratio of each source. The unused areas of the panel are displayed black.

Note: PaP is not available with test pattern and also not available with PTZ activated. PoP has the same limitation and the output resolution needs to have greater or equal to 768 lines.

3.11.3. PiP Size

Settings: **Small, Medium, Large**

Note: Large is always available. Small and Medium are only available if the output resolution is greater or equal to 768 lines and the PiP mode has less than 1920 horizontal active pixels.

3.11.4. PiP Position

Settings: **Top Left, Top Right, Bottom Left, Bottom Right and Free H/V**

Selects the quadrant where to show the PiP image.

When **Free H/V** is selected the horizontal and vertical PiP positioning sliders become available and the PiP can be moved over the screen.

3.12. Multiple Unit

LEDView-510 or 530 when operated it's LED mode and in the default multiple unit configuration has Multiple Unit menu. This is to set up each unit for use in a multi screen application.

Multiple screens are stitched together to provide a bigger display with higher resolution than a single display.

Each display is driven by a separate LEDView unit.

In a multi projection display the individual projections typically are chosen to overlap to give seamless transitions. Multiple LED walls or LCD/Plasma screens do not have overlapping regions. The Blend Width is set to zero..

Important: When using multiple LEDView units to drive one single large screen, it is essential that all LEDView units are I/O locked, otherwise motion tear will be observed at the boundaries of the image processed by each LEDView unit. It is also essential that all LEDiew units are setup for the same processing latency (either all units are in Best Picture mode or all units are in Low Latency mode).

The processors in a multi screen system application can be used in two ways

1/ Auto zoom on:- processers cut out the specified section of the image and scale this section to fill the projected area.

2/ Auto zoom off:- processors do not cut the image, the correct portion of the image including overlapping blend region must be supplied to each processor independently.

When using the Auto Zoom function explained below, each LEDView unit gets the same graphics or video input signal through a distribution amplifier. The LEDView unit cuts out and resizes the image to display the part of the image assigned to the corresponding screen.

In a **multi projection** display the individual projections typically are chosen to overlap to give seamless transitions.

Overlapping regions are illuminated by multiple projectors and are brighter than non-overlapping regions. These can be Soft Edge Blended for a uniform brightness over the total display the brightness in the overlapping regions has to be reduced electronically.

Important: When using multiple LEDView units to drive one single large screen, it is essential that all LEDView units are I/O locked, otherwise motion tear will be observed at the boundaries of the image processed by each LEDView unit. It is also essential that all LEDView units are setup for the same processing latency (for example, either all units are in Best Picture mode or all units are in Low Latency mode).

3.12.1. Auto Zoom

Available settings: On, Off

Switches on the auto zoom resizing the video image to display the assigned part of the total image.

The default is AutoZoom is off

When Auto zoom is turned on the processor will cut and scale the portion of the picture selected by the matrix size and position selected – described below

Note The menu is scaled by the warp engine and may exceed the size of the screen. Also, only the active video area can be used for the on-screen menu. This would crop the menu and make it impossible to navigate. In this case auto zoom is deactivated and a message will indicate such situations. After changes are made to correct the situation AutoZoom can be reactivated.

3.12.2. Units Wide/Units High

Settings: 1, 2, 3, 4/ 1, 2, 3, 4 for the maximum matrix size of 16

Provides the LEDView unit information of the multi screen installation. The number of horizontally and vertically installed screens or projectors is entered.

Note: This function can be used in conjunction with the item below to select the blend regions to be provided even when auto zoom is turned off

3.12.3. Horizontal Pos/Vertical Pos

Settings: 0 to 3 indicating co-ordinates 0,0, to 3.3 for the maximum matrix size of 16

With Auto zoom turned on this provides the LEDView unit information of which window portion of the total image it is assigned to and has to process (cut out and resize).

Note:- This function can be used in conjunction with the item above to select the blend regions to be provided even when auto zoom is turned off

3.12.4. Blend Width

In LED mode:- this should be set to zero

In Projection mode:-

The blend width menu provides sliders to set up the overlap region for left, right, top and bottom blend region.

Note With the 5xx models when changing the slider value from within the OSD the blend area is not updated 'live' immediately. An update is forced when pressing the menu/enter button, thus the slider is replaced by the menu. This is not ideal, but excessive blend area write time suggested this approach.

The overlap is set up in output pixels with a range of up to one third of the output resolution. For a configuration with two projectors in horizontal direction the overlap can be higher to allow 16:9 images to fit on two combined projectors with an aspect ratio of 4:3 or 5:4.

An offset for the blend region can be set-up as well. The region between the edge and the start of the blend area is black. The total pixels of blend area and offset region is limited by the same amount of pixels as for an offset of zero.

Note: Each LEDView unit needs to be provided with the exact same value for left and right blend region. Top and bottom blend region have to be identical as well, but don´t need to have the same value as left and right. The HQView units do not communicate between each other and thus they have to make an assumption for auto zoom calculations and that is overlap of the neighbouring (and those beyond) projectors is identical.

3.12.5. Blend Curve Type

In LED mode:- this should be set to off

In Projection mode:-

The blend curve type menu sets the blending characteristics.

For setting up the overlap the Align Pattern should be used. Align Patter reduces the image intensity of each pixel in the blend area by half.

When the blend region set up through the blend width menu and the physical blend match the S-Curve characteristics can be switched on. The image intensity is gradually reduced from the start of the blend to the edge of the respective projector image.

The S-Curve Value slider allows to control the steepness of the S-Curve. For convenience in this Blend Curve menu a duplicate of the Output Gamma slider can be found to match the grey scale of the images.

When a custom alpha map was loaded into the file system of the unit it is recognized and the Custom Alpha Map menu item becomes available. Custom alpha maps can be uploaded through the web or remote control API interface of HQView. The map can be switched on and off. The map is combined with the Align or S-curve map internally generated.

3.12.6. Black-Level Uplift

In LED mode:- this should be set to zero

In Projection mode:-

This enables the user to provide a black level uplift to compensate for the additional light leakage from multiple projectors in overlap regions. The black level uplift can be set for the 9 possible regions of the image. Setting the black level uplift for the middle of an edge also sets the black level uplift for the two adjacent corners, and if needed the corners can then be set individually.

The sliders for all regions which are not involved in edge blending for a given multiple unit configuration are greyed out, and the black level uplift for all these regions can be set together using the Non-Blend Region parameter.

3.12.7. Reduce Black-Level Uplift Width

In LED mode:- this is not relevant

In Projection mode:-

The Black Level Uplift field may need to be adjusted to achieve a perfect result. There may be an area of light leakage beyond the edge of the active image from the projector. With these controls the edges of the black uplift region can be moved so they can be aligned with the edges of the area of light leakage. In the case of projection under non-rectangular conditions the projection fields of adjacent projectors are not aligned with the blend region. The corners of the non-blend region can be moved to allow tracking of the edge of the projection field of adjacent projectors.

3.13. Enhancement

The enhancement menu provides image enhancement functions. Note that the enhancement settings apply to individual video **input** signal channels only but not to computer graphics signals.

3.13.1. Sharpness

Settings: -50 to 50 in steps of 1

Control of the sharpening enhancement filters' levels. These are peaking filters to improve high-frequency response. Note that setting this control too high on a signal which already has good high frequency response will cause ringing or ghosting.

3.13.2. Detail

Settings: 0, 1, 2, 3

This filter provides powerful 2D image enhancement which can be used to greatly improve detail definition and clarity without causing image ringing or ghosting. It improves both horizontal and vertical detail. Correct setting of the detail enhance filter can make SD signals look virtually indistinguishable from true HD. At setting 0 the filter is switched off, with setting 3 providing the highest effect.

3.13.3. Video Filters

The video filters menu provides LTI/CTI filters, TRNR/MNR noise reduction filters and a CCS cross color suppression filter.

The LTI filter enhances the sharpness of the luminance component. The CTI filter enhances the color sharpness of the chrominance signal by increasing the steepness of color edges.

TRNR (Temporal Recursive Noise Reduction) and MNR (Mosquito Noise Reduction) are available for SD input signals only. These filters reduce spatial and temporal noise as well as block artifacts.

CCS is a filter to reduce luminance to chrominance cross talk of composite video signals (only) which appears as a coarse rainbow pattern or random colors in regions of fine details.

3.13.4. Flicker Filter

Note: This feature and the corresponding sliders are only available when LEDView-510/530 is operated in LED or LCD/Plasma mode to be set under Output/Display Type/Display. Also, this feature is only available when the Display Mode is set to Low Latency. In low latency mode the motion adaptive de-interlacer is switched off and the Flicker Filter is used to achieve a decent image quality.

The Flicker Filter reduces interlace horizontal line edge bounce or flicker when scan converting from an interlaced input format to a progressive output signal. By choosing the filter strength and recursion mode it is possible to choose between higher levels of flicker reduction or better motion reproduction. By default the filter is on.

Filter Strength controls the filter weighting of prior field versus current field. Recursion chooses between vertical filtering of current and prior input fields, or current field and recursive data output from filter during prior field.

3.14. System

This selection contains functions which are more applicable to system operation than to picture adjustment.

3.14.1. User

Settings: USER 1, 2, 3, 4

A predefined setting stored under a user name can be selected. Several settings of the LEDView-510/530 can be stored under a user name. Thus, different users can store their preferred LEDView-510/530 settings and recall these profiles by picking up their user name from this menu.

Note: Using the Web interface, (any number of) settings can also be stored/restored to/from a PC disc drive.

3.14.2. Names/Profiles

The Names/Profiles menu provides input masks to rename the generic input channels and user names. User names and input channel names can be changed to any word with a maximum of 12 alpha numeric characters with a value range of 0-9, A-Z and blank.

The Names/Profiles menu allows the user to store profiles under a certain user name. It also allows to copy user profiles by loading a profile stored under one user name and save it under another user name. Reset Profile allows to restore default LEDView-510/530 settings for the currently selected user.

3.14.3. Input Config

Inputs can be configured through the following sub-menus:

VGA Setup:

Submenu for adjusting analogue computer video. A button for automatic setup of frequency and phase of the sampling clock is provided. This automatic adjustment is strongly recommended. Frequency (Clock) and phase can also be altered manually.

DVI/HDMI Setup:

The DVI-I connector will accept either DVI-D or VGA analogue inputs. The DVI-I channel can be configured accordingly.

The equalisation of the DVI interface can be boosted to allow for extended cable length.

The automatic HDMI and DVI Color Space and Range settings can be overwritten in this menu. Range can be set to limited video mode or full range. The color space can be set to RGB or YCbCr.

The DDC can be taken off line. When setting HDCP Input to off HQView pretends to be non HDCP compliant forcing the source to not encrypt data which is not copy protected.

SDI Setup:

For 3GSDI Level B type input modes the stream can be chosen.

SDI audio input is routed to the HDMI and 3GSDI output connector by default. LEDView-510/530 can also be set to monitor audio on the SPDIF connector. SDI Audio on the HDMI/3GSDI connector and SPDIF connector are mutually exclusive.

Two consecutive SDI audio channels can be output on the HDMI/3GSDI output interface. The group can be chosen. Or all eight SDI audio channels can be transmitted.

Component Setup:

The component interface of the LEDView-510/530 is configured through this submenu. The Colour Space can be set to YPbPr or RGB. The sync signal can be stripped from the Green or Y channel with the setting 3 Wire or from the separate sync line with the setting 4 Wire. The Auto setting will automatically detect a sync signal and set-up the LEDView-510/530 accordingly. This is set in under Synchronisation.

Test Pattern:

When the OSD menu is off the test pattern can be toggled through by pressing the up or down keys of the keypad. For unit control through a web browser or to set up a certain default test pattern please use the input configuration menu.

Custom test patterns loaded into the file system of the unit through the web interface, can be accessed through the same means.

Instead of custom test patterns also a screen grab of the current video can be stored in one of the four slots provided for custom test patterns.

The speed of the moving cross test pattern can be changed. Also, the foreground and background colour and the line width of the moving cross test pattern can be changed in this menu.

Note: Most test patterns are scaled in multiple unit configurations with Autozoom enabled since they are useful for setting up the blend and warp of the system. The SMPTE, and Pluge Patterns are not scaled.

Switching Transition:

When switching input channels by default the last frame of the prior displayed image is frozen and displayed until a stable image of the new input channel can be shown. The switchover process is supposed to be as seamless as possible. The source and monitor add switching noise due to unforeseeable activity of the firmware in said devices. By default LEDView is in auto frame rate switching and I/O lock mode. In order to get a best smooth switching result with the source and monitor I/O lock and auto frame rate switching have to be switched off in the Output/Display Type menu.

The switching transition of LEDView can be set to Freeze, Blank, Fast Fade and Slow Fade. Freeze halts the prior channel image until the new channel image is stable. Blank switches the output to show a black screen instead of the last channel image. Fast and slow fade have the prior channel image faded out and fade into the new channel video image once it is stable.

3.14.4. Display Mode

The “Display Mode” can be set to either Low Latency or Best Picture. In Best Picture optimum image processing is applied, whereas in Low Latency mode the lowest latency is achieved. The flicker of interlaced video is not suppressed totally for the latter setting. Thus it has the disadvantage of conventional CRT TVs, but also their advantage of almost no delay in response, which is important for applications such as gaming, simulation or imaging in medical treatment.

3.14.5. Menu Settings

This menu provides items to change the menu position and menu display time, i.e. the time after which the OSD is switched off again with no user interaction. OSD Messages can be activated and deactivated.

The menu language can be altered and the keypad can be locked. To unlock the keypad a combination of keys has to be pressed at the same time. The locking of the keyboard is accompanied by the message (LEDView-510): Keypad is locked. Press Menu/Up/Down to unlock. When successfully unlocking the keypad the message shows up: Keypad unlocked.

LEDView-530 has an additional menu item compared with LEDView-510 to switch off the OSD menu. The LCD menu – which is a copy of the OSD menu – then serves as the only menu navigation monitoring device. Also, the backlight level of the LCD itself can be set in this menu.

3.14.6. Network Settings

The Network Settings menu allows to configure the LEDView-510/530 TCP/IP address. Under Address Type a static or DHCP leased address can be chosen. The static address and Netmask need to be entered manually.

The Network Settings menu has a section with information on the DHCP Status and IP address assigned to the board, as well as the fixed MAC Address programmed into the LEDView-510/530. The DHCP status is Off when static assignment is used or it displays an address when DHCP has leased an address accordingly or it is None assigned if the lease was not successful.

Note: When changing from DHCP to Static mode or vice versa it is strongly recommended that LEDView-510/530 is powered down after such a change, then powered back up, so that it is properly recognised by other devices on the network.

3.14.7. Factory Defaults

This button let you restore all settings to the default values of the LEDView-510/530, thus, provide a means to get back to a known (good) system state. A requestor will come up and ask to confirm prior to actual restore.

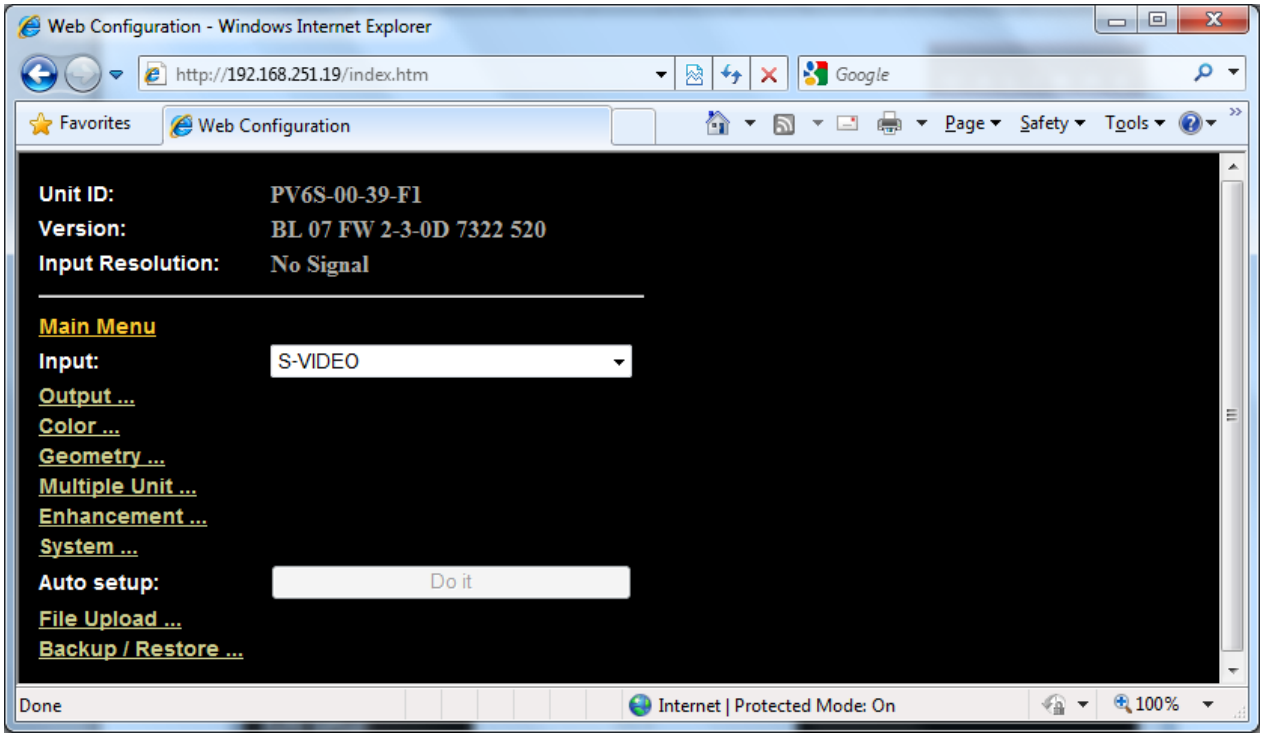
3.14.8. Operation Mode

Operating Mode allows to choose between the regular multiple unit mode with blend and warp and a single unit mode featuring PiP functionality. LEDView-510/530 will reboot when this setting is changed.

REMOTE CONTROL WEB SERVER

4.1. Introduction

LEDView-5xx features a web server which connects to a PC web browser via TCP/IP. The menu system of LEDView-5xx is mirrored into the web browser and all menu items can be accessed and controlled through the keyboard or mouse of the PC.



4.2. Installing the Software

No extra software needs to be installed on a PC. The PC web browser is used as the graphical user interface for all control items. To connect to the LEDView-5xx the TCP/IP address of the unit has to be entered into the address list box of the web browser in the following format http://xxx.xxx.xxx.xxx. The TCP/IP address assigned to HQView-5xx can be found in the System/Network Settings menu.

4.3. Discovery Tool

Calibre provides a DiscoveryTool.exe Windows application to identify Calibre boxes in the network.

http://www.calibreuk.com/downloads/LEDView/DiscoveryTool_V1.0.exe

Clicking on the link of the recognized box will open a browser and make a connection to the corresponding box. The box identifier is made up of “PV6S” in the case of LEDView-5xx followed by the 6 least significant digits of the MAC address. The MAC address of the box can be found in the System/Network Settings menu.

Note: This is for use on a network not on a single wire connection.

4.4. Software Operation

Once the address has been entered into the web browser starts to load pages from the LEDView-5xx mirroring the menu system of the unit. All menu items are shown as their respective buttons, sliders and list boxes and can be accessed and altered with the PC mouse or corresponding navigational key presses.

Note: When changes within a submenu make other menu items available immediately when using the on-screen menu of the LEDView-5xx this has to be either done manually by clicking on the refresh button of the web browser or is done with the next periodic auto refresh.

Various values are set by sliders. For fine increment of a slider value click on the slider and use the mouse wheel to change the value in steps of 1. Click again and the value is applied.

4.4.1. File Upload

A page for file uploads is provided.

Test patterns can be created and stored on the PC. Four such custom test patterns can be uploaded to and stored by the LEDView unit. Each of the test patterns in the four slots can be deleted and replaced by another test pattern.

The test patterns need to be in RGB 24bit .PNG format as e.g. supported by MS Paint®. For best detail the test patterns should be created with the output resolution LEDView will be operated at. Non matching resolution test patterns will be scaled to the output resolution.

A single alpha map can be uploaded to the HQView unit.

The alpha map format is B/W 16bit .PNG as e.g. supported by Adobe Paintshop®. Only the most significant 10 bits are used.

Also a Calibre proprietary format without compression is supported. This format is intended for uploads in proprietary calibration systems directly controlling the LEDView unit. Thus, a .PNG encoder does not have to be implemented on the host side. If the alpha map size exceeds the available storage space on the LEDView unit the .PNG (lossless compression) has to be used.

The Calibre format is as follows:

```
// Custom Alpha Map File Format
//
// Offset Size Purpose
//  00    4   Header field used to identify custom alpha map file ('AM30')
//  04    2   Horizontal resolution in pixels (big endian)
//  06    2   Vertical resolution in pixels (big endian)
//  08    s   Image data
//
// Each line of image data is built like this:
// One 32-bit unsigned (four bytes, big endian) for every three pixels of image data
// Bits[31..30] - unused
// Bits[20..20] - leftmost pixel of three
// Bits[19..10] - middle pixel of three
// Bits[09..00] - rightmost pixel of three
// Each line has to be zero-padded to make up an integer number of 32-bit unsigned values
//
// e.g. 1280 pixels horizontally needs 427 values (1024/3 = 426.67, rounded up)
//
// So the size (s) of the image data is calculated like this:
// s = CEILING(ImageWidth /3 ) * 4 * ImageHeight
//
// Example of a 1920x1200 custom alpha map (all alpha values set to 1):
//
// 000000 41 4D 33 30 07 80 04 B0 (header)
// 000008 3F FF FF FF 3F FF FF FF (beginning of first line)
// ...
```

```
// 000A08 3F FF FF FF 3F FF FF FF (beginning of second line)
// ...
// 2ED608 3F FF FF FF 3F FF FF FF (beginning of last line)
//
// s = CEILING(1920 /3 ) * 4 * 1200 = 3072000 bytes
```

FIRMWARE UPDATE

5.1. Introduction

LEDView-5xx has a USB port which allows a PC connection. With the Calibre PC Updater tool new firmware can be installed on LEDView-5xx for feature upgrades and bug fixes.

http://www.calibreuk.com/downloads/HQView/CalibreUK%20Universal%20Updater%20Installer%20V2.2.5.msi

The latest firmware version for your processor is published on our website at the bottom of this page:-

http://www.calibreuk.com/HQViewDownloads.htm

Save the correct file for your 5xx model number to your computer.

5.2. Updating Firmware

LEDView-5xx accepts firmware downloads only in a dedicated Updater mode.

First disconnect the USB lead.

The unit is put in Updater mode by pressing and keeping the Menu key pressed at power up. If the Menu key is released within 10 seconds after power up LEDView-5xx is in Updater mode. Otherwise, LEDView-5xx is started normally.

Whilst the Menu key is still pressed the On LED is flashing. When in Updater mode the On LED is flashing two times, then switched off, then flashing two times again, then switched off and so forth.

Now the USB connection between PC and LEDView-5xx needs to be established and the Calibre PC Updater tool to be started.

The PC Updater tool allows to browse and select a firmware file in BREC format. Once a BREC is selected the Update Firmware button has to be pressed and the firmware download to the HQView-5xx into non volatile flash RAM starts.

After completion of the download LEDView-5xx needs to be restarted normally (without pressing the Menu key) for the change to take effect.

ENVIRONMENTAL AND EMC

6.1. Recommended Operating Conditions

Temperature	0^{O}C to 40^{O}C
Humidity (non condensing)	0% to 95%

6.2. Storage

Temperature	-25^{O}C to $+85^{O}$C
Humidity	

6.3. CE and FCC Compliance

CE: This product complies with the requirements of 2004/108/EC Electromagnetic Compatibility Directive, and 2006/95/EC Low Voltage Directive. Compliance is to EN55022 Class A.

FCC: **WARNING:** This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at their own expense.

The user is cautioned that changes and modifications made to the equipment without approval of the manufacturer could void the user's authority to operate this equipment.

It is suggested that the user use only shielded and grounded signal cables to ensure compliance with FCC rules.

6.4. PAT Testing

Earth continuity testing under PAT regulations shall be done to the HQView/LEDView with 8A or 10A only. A test with 25A may damage the unit.

In fact, HQView/LEDView is IT equipment and the IEE Code of Practise to check earth continuity suggests an alternative 20-200mA test. If the PAT tester does not provide this method and a high current test is to be used instead a 8A or 10A test will be acceptable under the same IEE Code of Practise (a minimum of 1.5 times of the HQView/LEDView internal 5A fuse).

You have to be careful where you connect the earth bond test lead when using 8A or 10A. It is to the metal chassis that you must connect the test lead (mains earth). DO NOT CONNECT to the connectors of the rear panel (signal earth). The HQView/LEDView may never work again.